Take Test: Quiz 2.3 Statistical learning theory

Test Information

Description	
Instructions	
Multiple Attempts	This test allows multiple attempts.
Force Completion	This test can be saved and resumed later.

QUESTION 1

0.015 points Saved

Mark the WRONG sentence

- ○ The VC dimension of a linear machine is equal to the dimension of the space plus one.
- ● The VC dimension only works in linear machines.
- ○ The VC dimension is a measure of the complexity of a classification machine.
- ○ If the VC dimension of a machine is higher than the number of training data, the machine will probably overfit.

QUESTION 2

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The VC dimension is a way to determine the maximum complexity of a learning machine.

- ● True

○ False

QUESTION 3

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If the VC dimension of a machine is higher than the number of samples in the training set, then the machine is guaranteed to overfit:

○ because it will always correctly classify all points regardless of the control of the complexity.

● if we do not limit the complexity, because the machine will be able to shatter all the points.

○ Not true. The higher the VC dimension is the better the machine will work.

QUESTION 4

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The empirical risk is

○ the expectation of the error over the training samples.

● the sample average of the error over the training samples.

○ the sample average of the error over the test samples.

○ the expectation of the error over the test samples.

QUESTION 5

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The actual risk is the expectation of the error over the test samples, and it is bounded by the empirical risk plus the structural risk, where

○ the structural risk is a term that does not depend on anything related to the data the data, but only on the VC dimension.

○ the structural risk is a term that decreases when the VC dimension

Question Completion Status:

○ the structural risk increases with the VC dimension and the number of data.

● the structural risk is a term that increases of the VC dimension of the classifier, decreases with the number of training data. The actual risk is bounded with a probability less than 1.

QUESTION 6

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In Support Vector Machines, the complexity of the machine is limited by minimizing h, which is equivalent to minimize $||w||^2$

- [x] True
- [ ] False

QUESTION 7

0.015 points Save Answer

In SVM the minimization of the complexity is done by minimizing h, which is equivalent to minimize the distance d of the margin.

- [ ] True
- [x] False

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

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